

AMENDMENT UNDER 37 C.F.R. § 1.116

Application No.: 09/878,187

Atty Docket No.: Q61610

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (withdrawn): A high-temperature heat treatment method for carbon fiber which has been produced through thermal decomposition reaction of a carbon source and a transition metal catalyst, serving as main raw materials, which method comprises vaporizing an impurity contained in the carbon fiber, and discharging the impurity through a high-temperature section of a heat treatment furnace while being accompanied by a carrier gas.

Claim 2. (withdrawn): The high-temperature heat treatment method for carbon fiber as claimed in claim 1, further comprising cooling the impurity accompanied by the carrier gas to solidify the impurity, and recovering the impurity.

Claim 3. (withdrawn): The high-temperature heat treatment method for carbon fiber as claimed in claim 1 or 2, further comprising returning the carrier gas to the heat treatment furnace, after the impurity is recovered, and recycling the gas to be passed through the furnace.

Claim 4. (withdrawn): The high-temperature heat treatment method for carbon fiber as claimed in claim 1 or 2, wherein the impurity is a transition metal.

Claim 5. (withdrawn): The high-temperature heat treatment method for carbon fiber as claimed in claim 1 or 2, wherein an amount of Fe, Ni, or Co contained in the carbon fiber which has undergone heat treatment is about 100 mass ppm or less.

Claims 6 to 12 (canceled).

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Claim 13. (currently amended): A graphitized carbon fiber obtained by a high temperature heat treatment method for vapor grown carbon fiber which has been produced through thermal decomposition reaction of a carbon source and a transition metal catalyst, serving as main raw materials, which method comprises vaporizing a metal impurity contained in the carbon fiber, and discharging to outside of a heat treatment furnace the impurity through a vicinity of a highest temperature section of the furnace while being accompanied by a carrier gas, wherein the obtained carbon fiber comprises about 30 ppm or more to about 100 ppm or less of a metal element selected from the group consisting of Fe, Ni, or Co, ~~Cu, Mo, Ti, V and Pd~~.

Claim 14. (canceled).

Claim 15. (currently amended): The carbon fiber as claimed in claim 13, wherein the ~~high~~ highest temperature section of a heat treatment operates at approximately 2,000-3,300°C.

Claim 16. (previously presented): The carbon fiber as claimed in claim 13 wherein the carbon fiber has a diameter of about 0.005 to about 5 μm and a length of about 1 to about 1000 μm .

Claim 17. (new): The carbon fiber as claimed in claim 13, wherein the metal impurity is Fe and the carbon fiber comprises about 30 ppm or more to about 100 ppm or less of Fe.